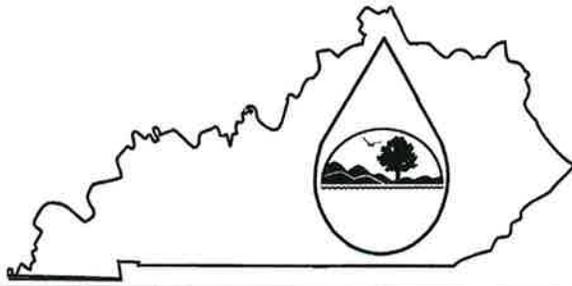


KPDES FORM 1

AI# 101506

KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION



This is an application to: (check one)

- Apply for a new permit.
- Apply for reissuance of expiring permit.
- Apply for a construction permit.
- Modify an existing permit.

Give reason for modification under Item II.A.

A complete application consists of this form and one of the following:

Form A, Form B, Form C, Form F, or Form SC

For additional information contact:

KPDES Branch (502) 564-3410

| | | |
|---|--|---|
| I. FACILITY LOCATION AND CONTACT INFORMATION | | AGENCY USE: <u>10107514</u> |
| A. Name of Business, Municipality, Company, Etc. Requesting Permit <u>Bogie Farms, LLC</u> | | |
| B. Facility Name and Location <u>Bogie Farms</u> | | C. Primary Mailing Address (all facility correspondence will be sent to this address). Include owner's mailing address (if different) in D. |
| Facility Location Name: <u>1851 Peggy Flat Road</u> | | Facility Contact Name and Title: Mr. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/> <u>Mr. Bryan Bogie</u> |
| Facility Location Address (i.e. street, road, etc., not P.O. Box): <u>1851 Peggy Flat Road</u> | | Mailing Address: <u>1851 Peggy Flat Road</u> |
| Facility Location City, State, Zip Code: <u>Paint Lick, Ky 40461</u> | | Mailing City, State, Zip Code: <u>Paint Lick, Ky 40461</u> |
| D. Owner's name (if not the same as in part A and C): <u>Bryan Bogie</u> | | Facility Contact Telephone Number: <u>859-985-0643</u> |
| Owner's Mailing Address: <u>1851 Peggy Flat Rd, Paint Lick, Ky 40461</u> | | Owner's Telephone Number (if different): <u>859-625-8488 (cell)</u> |
| II. FACILITY DESCRIPTION | | <div style="border: 2px solid blue; padding: 5px; display: inline-block;"> <p style="margin: 0;">RECEIVED</p> <p style="margin: 0; color: red;">SEP 17 2008</p> <p style="margin: 0;">By _____</p> </div> |
| A. Provide a brief description of activities, products, etc: <u>Feeding Cattle in Lot areas.</u> | | |
| B. Standard Industrial Classification (SIC) Code and Description | | |
| Principal SIC Code & Description: | | |
| Other SIC Codes: | | |
| III. FACILITY LOCATION | | |
| A. Attach a U.S. Geological Survey 7 1/2 minute quadrangle map for the site. (See instructions) | | |
| B. County where facility is located: <u>madison</u> | | City where facility is located (if applicable): <u>Paint Lick</u> |
| C. Body of water receiving discharge: <u>No Creeks, rivers etc. near location</u> | | |
| D. Facility Site Latitude (degrees, minutes, seconds): <u>37° 36' 50.06" N</u> | | Facility Site Longitude (degrees, minutes, seconds): <u>84° 19' 52.55" W</u> |
| E. Method used to obtain latitude & longitude (see instructions): <u>Google Earth</u> | | |
| F. Facility Dun and Bradstreet Number (DUNS #) (if applicable): <u>NONE</u> | | |

| | |
|---|---|
| IV. OWNER/OPERATOR INFORMATION | |
| A. Type of Ownership: <input type="checkbox"/> Publicly Owned <input checked="" type="checkbox"/> Privately Owned <input type="checkbox"/> State Owned <input type="checkbox"/> Both Public and Private Owned <input type="checkbox"/> Federally owned | |
| B. Operator Contact Information (See instructions) | |
| Name of Treatment Plant Operator: <i>N/A</i> | Telephone Number: |
| Operator Mailing Address (Street): | |
| Operator Mailing Address (City, State, Zip Code): | |
| Is the operator also the owner? Yes <input type="checkbox"/> No <input type="checkbox"/> | Is the operator certified? If yes, list certification class and number below. Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Certification Class: | Certification Number: |

| | | |
|--|-----------------------------------|------------------------------------|
| V. EXISTING ENVIRONMENTAL PERMITS | | |
| Current NPDES Number: <i>NONE</i> | Issue Date of Current Permit: | Expiration Date of Current Permit: |
| Number of Times Permit Reissued: | Date of Original Permit Issuance: | Sludge Disposal Permit Number: |
| Kentucky DOW Operational Permit #: | Kentucky DSMRE Permit Number(s): | |

Which of the following additional environmental permit/registration categories will also apply to this facility?

| CATEGORY | EXISTING PERMIT WITH NO. | PERMIT NEEDED WITH PLANNED APPLICATION DATE |
|--|--------------------------|---|
| Air Emission Source | | |
| Solid or Special Waste | | |
| Hazardous Waste - Registration or Permit | | |

VI. DISCHARGE MONITORING REPORTS (DMRs)

KPDES permit holders are required to submit DMRs to the Division of Water on a regular schedule (as defined by the KPDES permit). Information in this section serves to specifically identify the name and telephone number of the DMR official and the DMR mailing address (if different from the primary mailing address in Section I.C).

| | |
|---|-------------|
| A. DMR Official (i.e., the department, office or individual designated as responsible for submitting DMR forms to the Division of Water): | <i>Same</i> |
| DMR Official Telephone Number: | |

| | |
|--|-------------|
| B. DMR Mailing Address: | |
| <ul style="list-style-type: none"> Address the Division of Water will use to mail DMR forms (if different from mailing address in Section I.C), or Contact address if another individual, company, laboratory, etc. completes DMRs for you; e.g., contract laboratory address. | |
| DMR Mailing Name: | <i>Same</i> |
| DMR Mailing Address: | |
| DMR Mailing City, State, Zip Code: | |

VII. APPLICATION FILING FEE

KPDES regulations require that a permit applicant pay an application filing fee equal to twenty percent of the permit base fee. Please examine the base and filing fees listed below and in the Form 1 instructions and enclose a check payable to "Kentucky State Treasurer" for the appropriate amount (for permit renewals, please include the KPDES permit number on the check to ensure proper crediting). Descriptions of the base fee amounts are given in the "General Instructions."

| | |
|--|---|
| Facility Fee Category: minor Industry <i>AGR</i> | Filing Fee Enclosed: <i>\$420.00</i> |
|--|---|

VIII. CERTIFICATION

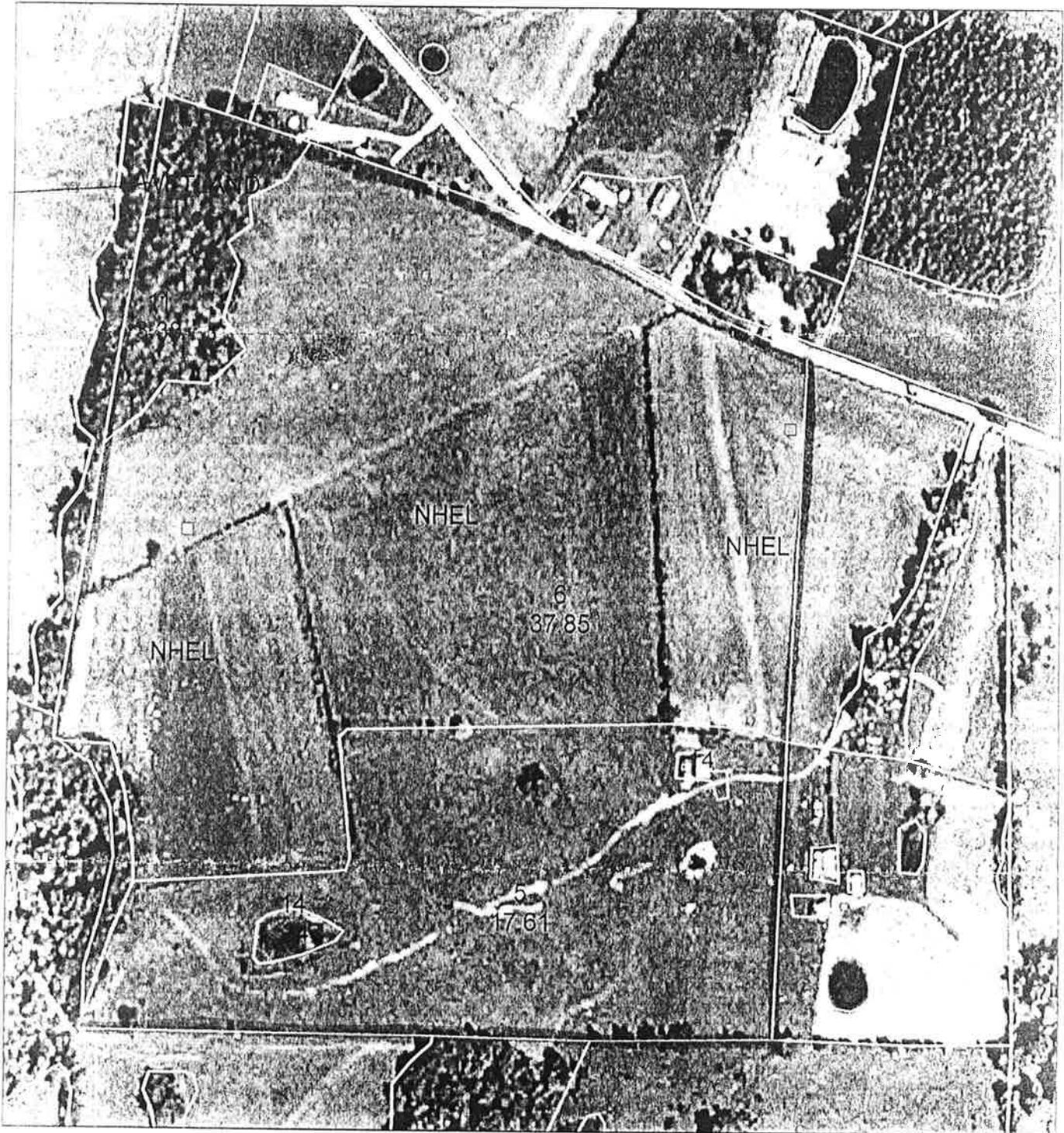
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

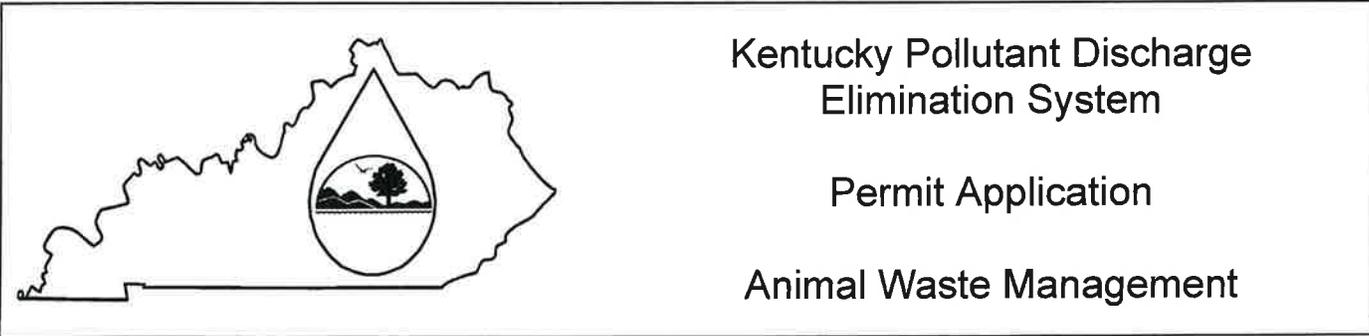
| | |
|--|---|
| NAME AND OFFICIAL TITLE (type or print): Mr. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/> <i>Bryan Bogie, President</i> | TELEPHONE NUMBER (area code and number): <i>859-625-8488</i> |
| SIGNATURE <i>Bryan Bogie</i> | DATE: <i>9/10/08</i> |

Return completed application form and attachments to: **KPDES Branch, Division of Water, Frankfort Office Park, 14 Reilly Road, Frankfort, KY 40601. Direct questions to: KPDES Branch at (502) 564-3410.**



UNITED STATES DEPARTMENT OF
AGRICULTURE
Farm Service Agency





A complete application consists of this form and Form 1.
For additional information, contact: KPDES Branch, (502) 564-3410.

Name of Facility Bogie Farms



| | | | | | | | | |
|--|------------|---|---|---|---|---|---|---|
| I. GENERAL INFORMATION (See Instructions) | Agency Use | 0 | 1 | 0 | 7 | 5 | 1 | 4 |
|--|------------|---|---|---|---|---|---|---|

- A. Type of business (Check one)
- Concentrated animal feeding operation (Complete Items I and II)
 - Concentrated aquatic animal production operation (Complete Items I and III)
- B. Give a legal description of the facility location.

- C. Facility operation status (Check one)
- Existing facility
 - Proposed facility

II. CONCENTRATED ANIMAL FEEDING OPERATION CHARACTERISTICS

A. Type and number of animals in open and housed.

| Type | Number in Open Confinement | Number Housed Under Roof |
|-----------------------|----------------------------|--------------------------|
| Beef Cattle (Feeders) | 550 hd. | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

B. Number of acres for confinement feeding 25 acres.
Number of acres for land application of waste 290 acres.

II. CONCENTRATED ANIMAL FEEDING OPERATION CHARACTERISTICS (continued)

C. If there is open confinement, has a runoff diversion and control system been constructed?

Yes (Complete 1, 2, & 3) No (Go to Item IV)

1. What is the design basis for the control system?

10-Year, 24-Hour Storm (specify inches)
 25-Year, 24-Hour Storm (specify inches)
 Other (specify inches) 6.1 (type) trapezoidal waterway
100 year 24hr storm

2. Report the number of acres of contributing drainage 9 (acres)

3. Report the design safety factor unknown - included in NRCS design charts. (safety factor)

D. The following items shall be attached to this form:

1. A signed certification statement indicating the facility is in compliance with all applicable setback features. *Applicable setbacks do not apply at this time.*
2. A waste management plan indicating the amount of waste generated and how it is to be used. *All waterways have been fenced out with buffer zones and have been seeded.*

III. CONCENTRATED AQUATIC ANIMAL PRODUCTION OPERATION CHARACTERISTICS

A. For each outfall, give the maximum daily flow, maximum 30-day flow, and the long term average flow.

| Outfall Number | Flow (gallons per day) | | |
|----------------|------------------------|-----------------|-------------------|
| | Maximum Daily | Maximum 30 Days | Long Term Average |
| | <i>N/A</i> | | |
| | | | |
| | | | |
| | | | |
| | | | |

B. Indicate the total number of ponds, raceways, and similar structures in your facility.

Ponds _____ Raceways _____ Other _____

C. Provide the name of the receiving water and the source of water used by your facility.

Receiving Water _____ Water Source _____

D. List the species of fish or aquatic animals held and fed at your facility. For each species, give the total weight produced by your facility per year in pounds of harvestable weight, and also give the maximum weight present at any one time.

| Species | Cold Water Species | | Species | Warm Water Species | |
|---------|-----------------------------|---------|---------|-----------------------------|---------|
| | Harvestable Weight (pounds) | | | Harvestable Weight (pounds) | |
| | Total Yearly | Maximum | | Total Yearly | Maximum |
| | <i>N/A</i> | | | | |

E. Report the total pounds of food fed during the calendar month of maximum feeding.

Month _____ Pounds _____

IV. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

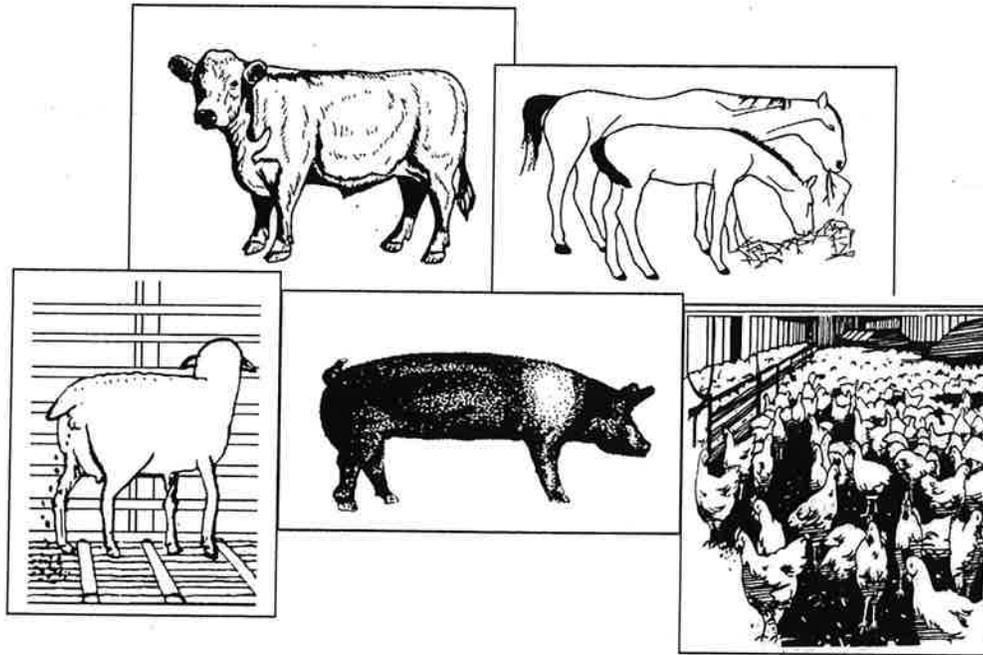
| | |
|--|--|
| NAME AND OFFICIAL TITLE (type or print) <i>Bogie Farms, LLC</i> | TELEPHONE NUMBER (area code and number) <i>859-625-8488</i> |
| SIGNATURE <i>Byron Bogie</i> | DATE SIGNED <i>9/10/08</i> |

If according to 401 KAR 5:072 a second signature is necessary, please provide below.

| | |
|---|---|
| NAME AND OFFICIAL TITLE (type or print) | TELEPHONE NUMBER (area code and number) |
| SIGNATURE | DATE SIGNED |

NUTRIENT MANAGEMENT PLAN

Prepared for
Bogie Farms LLC



In

Madison County, Kentucky

Assisted by
Samuel K. Miller, District Conservationist
United States Department of Agriculture
Natural Resources Conservation Service

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Preface

Samuel K. Miller is developing this Nutrient Management Plan on June 19, 2008 as requested for Bogie Farms LLC. The plan is developed in accordance with the NRCS Nutrient Management conservation practice standard (Code 590) that is currently in effect.

Planner certification number (if applicable): 211602053

FARM DATA FOR: **Bogie Farms LLC**
 MADISON COUNTY, KENTUCKY
 Information current as of: June 19, 2008

This Nutrient Management Plan applies to fields referenced on the planning map that is maintained as part of the conservation plan or otherwise enclosed in Appendix C of this plan document. The land mentioned in this plan can be identified on USDA records as FSN 7128, Tract 6133 (site of planned waste storage facility) and FSN 5079, Tract 924 (proposed waste utilization acres).

System Description

This plan is being developed to manage the manure nutrients generated by a beef cattle operation. The operation consists of livestock feeding facilities and manure storage structures currently in use or to be constructed in field #2 on Tract 6133. Manure will be available for land application on the operation as of April 1, 2009.

Note: Specific operational background data used in developing this plan is documented on worksheets 1, 2 and 3, which are included in this document. *Additional background information for this operation that is pertinent to the development and implementation of a nutrient management plan is attached in Appendix C and/or is documented in the conservation plan.*

Manure Handling and Storage

Manure generated by this operation will be stored in a waste storage facility. Although this structure may have the capacity to only store manure for a partial year, this plan will identify acreage and application rates that consider the total manure generated throughout a 1 year period by the operation. Reference specific information on Appendix A Worksheet 1 for estimated annual manure volume and nutrient content.

Land Application of Manure

The manure will be land applied as a source of plant available nutrients on land that is under the control of the operator. Manure applied on your property, or property under your control, will be land applied according to an application rate determined for each field using the following methods:

1. **(New Operations - Year One)** Use the estimated plant available nutrients per ton of manure to determine total nutrients available in the system. Use the estimated crop nutrient removal values or current field soil test recommendations (when available) as a basis for planning manure application rates. When current soil tests are not available at the time the plan is prepared, application rates of manure in year one will be based on crop nutrient removal values for phosphorus as indicated in Table 6 of the NRCS Nutrient Management Standard (590). When soil test material becomes available, a plan revision can be made. **Note: When the current soil test level of Phosphorous is above 400, additional information will be gathered by the planner prior to recommending a basis for planning application rates.** When the manure has not been analyzed for nutrient content, nutrients in the manure will be determined using "book values" until a laboratory analysis of the stored manure can be obtained. Land application rates that are based on book values should be adjusted as needed after sampling and testing of stored manure and subsequent soil sampling in application fields is performed.

2. **(Established Operations - Year Two and Beyond)** Use manure analysis data to determine total nutrients (per ton of manure) in the system. *Note: When the current soil test level of Phosphorous is above 400, additional information will be gathered by the planner prior to recommending a basis for planning manure application rates.* Previous year land application rates that were based on book values should be adjusted as needed after sampling and testing of stored manure and soil sampling in application fields is performed.

In all years, manure will be land applied according to information that is documented on nutrient balance worksheets (see appendix A worksheet 2 for each field) that have been developed for this operation. When copies become available, soil test analysis and fertilizer recommendations for each field can be referenced in Appendix C.

Note: Additional land can be rented for disposal if needed or the excess manure can be sold. See information in the section: *Utilization of manure transported off-site and not under your control.*

Determining Application Rates and Land Requirements

Information in this portion of the plan includes specific references to fields on this operation that will be receiving application of animal manures. *Aerial farm maps, soils maps and other data can be referenced in Appendix C of this plan.*

Nutrient Production

Refer to Appendix A, Worksheet 1 for the total (annual) amount of nutrients produced by this operation and available for land application.

Application Methods and Timing

Key components of manure management are application timing and method of land application. Manure must be applied as close to planting as possible or when the crop is actively growing and by a method that lessens the risk of it entering streams, other water bodies, and environmentally sensitive areas. *Timing and method of each application is indicated in the recordkeeping information which can be referenced on Worksheet 3 of Appendix A. Timing and method of application may also be documented in the Phosphorus Index calculation if applicable.*

Soil Testing

Soil tests should be utilized to develop this plan. *Refer to Appendix C of this plan for current soil test information recorded by field for this operation.* Soil nutrient levels should be monitored by soil testing to determine the buildup of phosphorus and potassium in the soil. Soil test analysis must include pH, phosphorus, and potassium. Soil amendments shall be applied to adjust pH to specific range of the crop for optimum utilization of nutrients. **Routine soil testing by field should occur according to University of Kentucky guidelines when nutrients in the form of commercial fertilizers or animal manures are land applied during the crop year.**

Soil samples are to be collected in accordance with The University of Kentucky extension service guidance. Soil testing is to be performed by laboratories that meet all of the following:

- Certification In The North American Proficiency Testing Program (Soil Science Society of America)
- Other laboratories whose test results are accepted by The University of Kentucky
- Soil Test Phosphorus (STP) is determined by the Mehlich III method

Soil profile sampling for nitrogen, Pre-Sidedress Nitrogen Test (PSNT), Pre-Plant Soil Nitrate (PPSN) or soil surface sampling for phosphorus or acidity may be necessary in situations where there are special production or environmental concerns.

Manure Testing

When a laboratory analysis of the manure becomes available, a more accurate application rate can be determined. Modifications in application rates should be documented on Worksheet 2 in Appendix A of this plan. Testing of the manure should include an analysis for Total Nitrogen and Total Phosphorus. The results should be obtained in pounds of nutrients per ton of manure. Annual testing of manure is not required unless management changes occur that impact the number of animal units, manure storage method, manure storage frequency, feed rations or other feature that could alter the analysis data collected in a prior year.

Procedures for collecting manure samples are provided in Appendix B of this plan. Contact the local NRCS, Conservation District, Extension office or third party vendor after receiving the manure analysis report for assistance in determining an actual application amount. *When manure analysis information is available for this operation, attach copies of the laboratory reports in Appendix C of this plan.*

Land Application Operation and Maintenance Requirements

In case of accidental spill, every effort should be made to contain the manure on site and protect environmentally sensitive areas. Contact the Kentucky Division of Water immediately.

- 1) If the crop, method of application, feed ration or consistency of manure changes, it will be necessary to re-calculate an appropriate application amount using Worksheet 2 in Appendix A.
- 2) Liquid manure shall not be applied on saturated, frozen and/or snow-covered soil.
- 3) Manure will not be spread in an established waterway or any defined drainageway that carries concentrated flow. Manure may be applied to newly constructed grass waterways if incorporated immediately.
- 4) Manure should not be applied on land that is subject to occasional or frequent flooding unless the manure is incorporated immediately.
- 5) Incorporating manure into the soil versus surface application can reduce odors.
- 6) Maintain crop residue on ground surface as prescribed in the HEL compliance plan.
- 7) Equipment shall be calibrated to ensure uniform distribution of manure at recommended rates.
- 8) Avoid unnecessary contact with chemical fertilizers and organic byproducts. Wear protective clothing when working with plant nutrients. Extra caution should be taken when handling ammonia sources of nutrients, or when dealing with organic wastes in stored or unventilated enclosures.
- 9) Vehicles used to transport manure on State or Federally maintained roads should be covered when the hauling distance is greater than one mile.
- 10) Refer to manure storage system design for emptying frequency and specific operation and maintenance requirements.
- 11) Buffer areas should be maintained around fields receiving manure.

Utilization of manure transported off-site and not under your control

In some cases, all the manure generated by the system may not be land applied by the operator. In these situations, the operator is responsible for documenting quantities of manure or compost transported off-site; including the name of the recipient, date and amount transported. This documentation can be maintained by the operator in Appendix C of this plan.

Land Management

Best Management Practices (BMP's) that minimize the movement of nutrients, pathogens, organic materials, and soil to surface and ground water should be implemented as part of the plan. BMP's may include, but not be limited to; installing vegetative buffers, reducing P_2O_5 application rate, adding chemical treatments to manure that tie up soluble P, incorporating high available phosphorus corn into the feed ration, and/or incorporating the manure into the soil. *Refer to information contained in a Conservation Plan and other documents applicable to this operation which may be attached in Appendix C of this plan.*

Dead Animal Management

Dead animals will be disposed of according to state or local laws and in a way that does not adversely affect ground or surface water or create public health concerns. Unless otherwise noted, no adjustment for mortality has been made when estimating manure volume generated by the system.

Manure Handling/Storage Facility Construction Specifications

If facility construction plans are necessary, refer to plan drawings and construction details for installing the manure storage facility. Further details regarding facility construction are not included with these plans. Refer to specific operation and maintenance guidelines that are included with the facility design and construction specifications.

Record Keeping

Field-by-field records should be kept by the producer for a minimum of 5 years or the length of the cropping rotation, whichever is longer, for fields where the producer has control to apply manures. Recordkeeping will include information pertaining to specific field manure applications. *This information is maintained on Worksheet 3 in Appendix A of this plan.* Additional records for the operation shall include:

1. Soil test results - Soil tests should be taken and sent to UK's soil testing lab or other approved lab to monitor the soil nutrient levels and determine appropriate application rates.
2. Quantities and sources of nutrients applied and/or sold, and heavy metals applied if applicable.
3. Dates and Methods of nutrient application (e.g., broadcast, incorporated, injected, or fertigation)
4. Crops planted, tillage method, and dates planted.
5. Harvest dates and yield, and crop residues removed.
6. Results of laboratory test (e.g., manure analysis, plant tissue, and other organic byproduct test).
7. Adjustments to the nutrient management plan based on records and changes in farming operations as appropriate.

Feed Management

There is a relationship between nutrients in manure and feed. The animal feed ration may be adjusted to alter the nutrient content of the manure. In most cases, a feed management specialist should be contacted for more information before proceeding with this activity.

Additional Reference Information

PLAN AGREEMENT

Name of Operator: Bogie Farms LLC

The Kentucky Department For Environmental Protection Division of Water (DOW) acting under the authority of the Clean Water Act of 1972 requires that animal byproducts (manure, feedlot or holding area runoff, milkhouse supernatant, silo drainage, etc.) be managed so as not to enter the waters of the State. This Nutrient Management Plan provides the basic information on how the manure produced from your operation, and/or applied on your fields, will be utilized. Is this plan considered to be part of a Comprehensive Nutrient Management Plan (circle Yes or No)? If YES, other components could apply that may not be referenced in this document. For further information reference Appendix C.

Operator Agreement

I (we) understand and will follow and implement this plan for the farm named above. I (we) know that any expansion or management change to the existing design capacity of the system will require a revised plan and possibly a new or revised permit. The approved plan should be filed on-site at the farm. When implementation of this plan is a required component of a regulatory permit or is mandated by other regulations, I will assume all responsibility for compliance. The operator must document manure that is sold or given away. The recipient is responsible for handling and utilizing the animal waste in accordance with state laws and regulations.

Signatures:

Operator Information (Persons Responsible For Plan Implementation):

Print Name: Bryan Bogie

Signature: Bogie Farms LLC Date: 6/25/08

Print Name of Manager (if different from owner): _____

Signature: _____ Date: _____

Nutrient Management Plan Developer Information: (Enter information for all applicable items)

Print Name: Samuel K. Miller Address: 2150 Lexington Rd., Richmond, Ky. 40475

Signature: Samuel K. Miller Date: 6-20-08

Planner Certification Number if Applicable: 211602053

APPENDIX A

WORKSHEET 2 - NUTRIENT BALANCE

| | | |
|--------------|------------------|--------------|
| Tract | Field No. | Acres |
| 924 | 1 (Spring) | 29.4 |

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation

Orchard Grass/Clover Pasture

2. Realistic Yield Goal

3.5 tons/acre

3. Plant Nutrients Needed or Allowed (lbs/ac)

(based on soil tests (ST) or crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| | | |
|-----|-------------------------------|------------------|
| N | P ₂ O ₅ | K ₂ O |
| 122 | 42 | 185 |
| CR | CR | CR |

4. If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.

Step 3 P₂O₅ x 0

0

5. Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)

5

6. Fertilizer Credits (Starter or Other) (lbs/ac)

0 0 0

7. Nitrogen credits for previous manure applications (lbs/ac) Table 5 value x net application of manure nutrients "N" in previous year(s)

5

8. Plant Nutrients Needed minus Credits (lbs/ac)

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

112 42 185

9. Nutrients in Manure (lbs/ton) Circle: Solids or Liquids (Use lab test or weighted value as determined in Worksheet 1)

11.15 6.89 8.20

10. Percent Nutrients Retained in System (Table 2)

Enter Table value as a decimal. (Enter zero with lab analysis)

80% 95% 95%

11. Net Retained Nutrients in Manure (lbs./ton)

(Step 9 x Step 10) Enter zero with lab analysis.

8.92 6.54 7.79

12. Percent of available nutrients (Table 3)

60% 80% 100%

13. Net available nutrients (lbs./ton)

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

5.35 5.23 7.79

14. APPLICATION RATE (tons/ac)

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

15. Net Application Amount for All Nutrients (lbs/ac)

[Step 13 x Step 14]

10 10 10

53.5 52.3 77.9

16. Nutrient Needs or Surpluses (lbs/ac)

(Step 15 minus Step 8) "-" sign indicates need

-58.5 10.3 -107.1

Tons Available 4,281.66
Solids

-Tons Applied in Field
(Step 14 x Field Acres)

294

=Balance

3987.66

WORKSHEET 2 - NUTRIENT BALANCE

| | | |
|--------------|------------------|--------------|
| Tract | Field No. | Acres |
| 924 | 2 (Spring) | 46.4 |

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation

Orchardgrass/Clover Hay

2. Realistic Yield Goal

3.5 tons/acre

3. Plant Nutrients Needed or Allowed (lbs/ac)

(based on soil tests (ST) *or* crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| | | |
|-----|-------------------------------|------------------|
| N | P ₂ O ₅ | K ₂ O |
| 122 | 42 | 185 |
| CR | CR | CR |

4. If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.

Step 3 P₂O₅ x 0

0

5. Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)

5

6. Fertilizer Credits (Starter *or* Other) (lbs/ac)

0 0 0

7. Nitrogen credits for previous manure applications (lbs/ac) Table 5 value x net application of manure nutrients "N" in previous year(s)

5

8. Plant Nutrients Needed minus Credits (lbs/ac)

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

112 42 185

9. Nutrients in Manure (lbs/ton) Circle: solids or Liquids (Use lab test *or* weighted value as determined in Worksheet 1)

11.15 6.89 8.20

10. Percent Nutrients Retained in System (Table 2)

Enter Table value as a decimal. (Enter zero with lab analysis)

80% 95% 95%

11. Net Retained Nutrients in Manure (lbs./ton)

(Step 9 x Step 10) Enter zero with lab analysis.

8.92 6.54 7.79

12. Percent of available nutrients (Table 3)

50% 80% 100%

13. Net available nutrients (lbs./ton)

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

4.46 5.23 7.79

14. APPLICATION RATE (tons/ac)

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

10 10 10

15. Net Application Amount for All Nutrients (lbs/ac)

[Step 13 x Step 14]

44.6 52.3 77.9

16. Nutrient Needs or Surpluses (lbs/ac)

(Step 15 minus Step 8) "-" sign indicates need

-67.4 10.3 -107.1

Tons Available Solids 3,987.66

-Tons Applied in Field (Step 14 x Field Acres)

464 =Balance 3523.66

WORKSHEET 2 - NUTRIENT BALANCE

| | | |
|--------------|------------------|--------------|
| Tract | Field No. | Acres |
| 924 | 3 (Spring) | 58.8 |

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation

Orchardgrass/Clover Pasture

2. Realistic Yield Goal

3.5 tons/acre

3. Plant Nutrients Needed or Allowed (lbs/ac)

(based on soil tests (ST) or crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| | | |
|-----|-------------------------------|------------------|
| N | P ₂ O ₅ | K ₂ O |
| 122 | 42 | 185 |
| CR | CR | CR |

4. If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.

Step 3 P₂O₅ x 0

0

5. Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)

5

6. Fertilizer Credits (Starter or Other) (lbs/ac)

0 0 0

7. Nitrogen credits for previous manure applications (lbs/ac) Table 5 value x net application of manure nutrients "N" in previous year(s)

5

8. Plant Nutrients Needed minus Credits (lbs/ac)

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

112 42 185

9. Nutrients in Manure (lbs/ton) Circle: Solids or Liquids (Use lab test or weighted value as determined in Worksheet 1)

11.15 6.89 8.20

10. Percent Nutrients Retained in System (Table 2)

Enter Table value as a decimal. (Enter zero with lab analysis)

80% 95% 95%

11. Net Retained Nutrients in Manure (lbs./ton)

(Step 9 x Step 10) Enter zero with lab analysis.

8.92 6.54 7.79

12. Percent of available nutrients (Table 3)

60% 80% 100%

13. Net available nutrients (lbs./ton)

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

5.35 5.23 7.79

14. APPLICATION RATE (tons/ac)

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

15. Net Application Amount for All Nutrients (lbs/ac)

[Step 13 x Step 14]

10 10 10

53.5 52.3 77.9

16. Nutrient Needs or Surpluses (lbs/ac)

(Step 15 minus Step 8) "-" sign indicates need

-58.5 10.3 -107.1

Tons Available Solids 3,523.66

-Tons Applied in Field (Step 14 x Field Acres)

588 =Balance 2935.66

WORKSHEET 2 - NUTRIENT BALANCE

| | | |
|--------------|------------------|--------------|
| Tract | Field No. | Acres |
| 924 | 4 (Spring) | 26.9 |

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation

Orchardgrass/Clover Pasture

2. Realistic Yield Goal

3.5 tons/acre

3. Plant Nutrients Needed or Allowed (lbs/ac)

(based on soil tests (ST) *or* crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| | | |
|-----|-------------------------------|------------------|
| N | P ₂ O ₅ | K ₂ O |
| 122 | 42 | 185 |
| CR | CR | CR |

4. If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.

Step 3 P₂O₅ x 0

0

5. Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)

5

6. Fertilizer Credits (Starter *or* Other) (lbs/ac)

0 0 0

7. Nitrogen credits for previous manure applications (lbs/ac) Table 5 value x net application of manure nutrients "N" in previous year(s)

5

8. Plant Nutrients Needed minus Credits (lbs/ac)

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

112 42 185

9. Nutrients in Manure (lbs/ton) Circle: Solids Liquids
(Use lab test *or* weighted value as determined in Worksheet 1)

11.15 6.89 8.20

10. Percent Nutrients Retained in System (Table 2)

Enter Table value as a decimal. (Enter zero with lab analysis)

80% 95% 95%

11. Net Retained Nutrients in Manure (lbs./ton)

(Step 9 x Step 10) Enter zero with lab analysis.

8.92 6.54 7.79

12. Percent of available nutrients (Table 3)

60% 80% 100%

13. Net available nutrients (lbs./ton)

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

5.35 5.23 7.79

14. APPLICATION RATE (tons/ac)

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

10 10 10

15. Net Application Amount for All Nutrients (lbs/ac)

[Step 13 x Step 14]

53.5 52.3 77.9

16. Nutrient Needs or Surpluses (lbs/ac)

(Step 15 minus Step 8) "-" sign indicates need

-58.5 10.3 -107.1

Tons Available 2,935.66
Solids

-Tons Applied in Field
(Step 14 x Field Acres)

269 =Balance 2666.66

WORKSHEET 2 - NUTRIENT BALANCE

| Tract | Field No. | Acres |
|-------|------------|-------|
| 924 | 5 (Spring) | 69.4 |

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation

Orchardgrass/Clover Pasture

2. Realistic Yield Goal

3.5 tons/acre

3. Plant Nutrients Needed or Allowed (lbs/ac)

(based on soil tests (ST) *or* crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| N | P ₂ O ₅ | K ₂ O |
|-----|-------------------------------|------------------|
| 122 | 42 | 185 |
| CR | CR | CR |

4. If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.

Step 3 P₂O₅ x 0

0

5. Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)

5

6. Fertilizer Credits (Starter *or* Other) (lbs/ac)

0 0 0

7. Nitrogen credits for previous manure applications (lbs/ac) Table 5 value x net application of manure nutrients "N" in previous year(s)

5

8. Plant Nutrients Needed minus Credits (lbs/ac)

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

112 42 185

9. Nutrients in Manure (lbs/ton) Circle: solids Liquids (Use lab test *or* weighted value as determined in Worksheet 1)

11.15 6.89 8.20

10. Percent Nutrients Retained in System (Table 2)

Enter Table value as a decimal. (Enter zero with lab analysis)

80% 95% 95%

11. Net Retained Nutrients in Manure (lbs./ton)

(Step 9 x Step 10) Enter zero with lab analysis.

8.92 6.54 7.79

12. Percent of available nutrients (Table 3)

60% 80% 100%

13. Net available nutrients (lbs./ton)

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

5.35 5.23 7.79

14. APPLICATION RATE (tons/ac)

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

15. Net Application Amount for All Nutrients (lbs/ac)

[Step 13 x Step 14]

10 10 10

53.5 52.3 77.9

16. Nutrient Needs or Surpluses (lbs/ac)

(Step 15 minus Step 8) "-" sign indicates need

-58.5 10.3 -107.1

Tons Available 2,666.66
Solids

-Tons Applied in Field
(Step 14 x Field Acres)

694 =Balance 1972.66

WORKSHEET 2 - NUTRIENT BALANCE

| | | |
|--------------|------------------|--------------|
| Tract | Field No. | Acres |
| 6133 | 3 | 15.8 |

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation

2. Realistic Yield Goal

3. Plant Nutrients Needed or Allowed (lbs/ac)

(based on soil tests (ST) or crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| | | |
|-----|-------------------------------|------------------|
| N | P ₂ O ₅ | K ₂ O |
| 122 | 42 | 185 |
| CR | CR | CR |

4. If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.

Step 3 P₂O₅ x 0

5. Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)

6. Fertilizer Credits (Starter or Other) (lbs/ac)

7. Nitrogen credits for previous manure applications (lbs/ac) Table 5 value x net application of manure nutrients "N" in previous year(s)

8. Plant Nutrients Needed minus Credits (lbs/ac)

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

9. Nutrients in Manure (lbs/ton) Circle: Solids Liquids (Use lab test or weighted value as determined in Worksheet 1)

10. Percent Nutrients Retained in System (Table 2)

Enter Table value as a decimal. (Enter zero with lab analysis)

11. Net Retained Nutrients in Manure (lbs./ton)

(Step 9 x Step 10) Enter zero with lab analysis.

12. Percent of available nutrients (Table 3)

13. Net available nutrients (lbs./ton)

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

14. APPLICATION RATE (tons/ac)

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

15. Net Application Amount for All Nutrients (lbs/ac)

[Step 13 x Step 14]

16. Nutrient Needs or Surpluses (lbs/ac)

(Step 15 minus Step 8) "-" sign indicates need

Tons Available 1,972.66
Solids

-Tons Applied in Field
(Step 14 x Field Acres)

158 =Balance 1814.66

WORKSHEET 2 - NUTRIENT BALANCE

| | | |
|--------------|------------------|--------------|
| Tract | Field No. | Acres |
| 924 | 1 (Fall) | 29.4 |

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation

Orchardgrass/Clover Pasture

2. Realistic Yield Goal

3.5 tons/acre

3. Plant Nutrients Needed or Allowed (lbs/ac)

(based on soil tests (ST) or crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| | | |
|-----|-------------------------------|------------------|
| N | P ₂ O ₅ | K ₂ O |
| 122 | 42 | 185 |
| CR | CR | CR |

4. If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.

Step 3 P₂O₅ x 0

0

5. Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)

5

6. Fertilizer Credits (Starter or Other) (lbs/ac)

0 0 0

7. Nitrogen credits for previous manure applications (lbs/ac) Table 5 value x net application of manure nutrients "N" in previous year(s)

5

8. Plant Nutrients Needed minus Credits (lbs/ac)

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

112 42 185

9. Nutrients in Manure (lbs/ton) Circle: solids Liquids (Use lab test or weighted value as determined in Worksheet 1)

11.15 6.89 8.20

10. Percent Nutrients Retained in System (Table 2)

Enter Table value as a decimal. (Enter zero with lab analysis)

80% 95% 95%

11. Net Retained Nutrients in Manure (lbs./ton)

(Step 9 x Step 10) Enter zero with lab analysis.

8.92 6.54 7.79

12. Percent of available nutrients (Table 3)

60% 80% 100%

13. Net available nutrients (lbs./ton)

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

5.35 5.23 7.79

14. APPLICATION RATE (tons/ac)

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

10 10 10

15. Net Application Amount for All Nutrients (lbs/ac)

[Step 13 x Step 14]

53.5 52.3 77.9

16. Nutrient Needs or Surpluses (lbs/ac)

(Step 15 minus Step 8) "-" sign indicates need

-58.5 10.3 -107.1

Tons Available 1,814.66
Solids

-Tons Applied in Field 294
(Step 14 x Field Acres)

=Balance 1520.66

WORKSHEET 2 - NUTRIENT BALANCE

| | | |
|--------------|------------------|--------------|
| Tract | Field No. | Acres |
| 924 | 2 (Fall) | 46.4 |

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation

Orchardgrass/Clover Pasture

2. Realistic Yield Goal

3.5 tons/acre

3. Plant Nutrients Needed or Allowed (lbs/ac)

(based on soil tests (ST) or crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| | | |
|-----|-------------------------------|------------------|
| N | P ₂ O ₅ | K ₂ O |
| 122 | 42 | 185 |
| CR | CR | CR |

4. If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.

Step 3 P₂O₅ x 0

0

5. Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)

5

6. Fertilizer Credits (Starter or Other) (lbs/ac)

0 0 0

7. Nitrogen credits for previous manure applications (lbs/ac) Table 5 value x net application of manure nutrients "N" in previous year(s)

5

8. Plant Nutrients Needed minus Credits (lbs/ac)

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

112 42 185

9. Nutrients in Manure (lbs/ton) Circle: solids Liquids
(Use lab test or weighted value as determined in Worksheet 1)

11.15 6.89 8.20

10. Percent Nutrients Retained in System (Table 2)

Enter Table value as a decimal. (Enter zero with lab analysis)

80% 95% 95%

11. Net Retained Nutrients in Manure (lbs./ton)

(Step 9 x Step 10) Enter zero with lab analysis.

8.92 6.54 7.79

12. Percent of available nutrients (Table 3)

60% 80% 100%

13. Net available nutrients (lbs./ton)

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

5.35 5.23 7.79

14. APPLICATION RATE (tons/ac)

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

10 10 10

15. Net Application Amount for All Nutrients (lbs/ac)

[Step 13 x Step 14]

53.5 52.3 77.9

16. Nutrient Needs or Surpluses (lbs/ac)

(Step 15 minus Step 8) "-" sign indicates need

-58.5 10.3 -107.1

Tons Available Solids 1,520.66

-Tons Applied in Field
(Step 14 x Field Acres)

464 =Balance 1056.66

WORKSHEET 2 - NUTRIENT BALANCE

| | | |
|--------------|------------------|--------------|
| Tract | Field No. | Acres |
| 924 | 3 (Fall) | 58.8 |

Soil Test P Value (Mehlich 3)

1. **Crop or Crop Sequence/Rotation**

Orchardgrass/Clover Pasture

2. **Realistic Yield Goal**

3.5 tons/acre

3. **Plant Nutrients Needed or Allowed (lbs/ac)**

(based on soil tests (ST) or crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| | | |
|-----|-------------------------------|------------------|
| N | P ₂ O ₅ | K ₂ O |
| 122 | 42 | 185 |
| CR | CR | CR |

4. **If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.**

Step 3 P₂O₅ x 0

0

5. **Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)**

5

6. **Fertilizer Credits (Starter or Other) (lbs/ac)**

0 0 0

7. **Nitrogen credits for previous manure applications (lbs/ac)** Table 5 value x net application of manure nutrients "N" in previous year(s)

5

8. **Plant Nutrients Needed minus Credits (lbs/ac)**

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

112 42 185

9. **Nutrients in Manure (lbs/ton)** Circle: Solids Liquids
(Use lab test or weighted value as determined in Worksheet 1)

11.15 6.89 8.20

10. **Percent Nutrients Retained in System (Table 2)**

Enter Table value as a decimal. (Enter zero with lab analysis)

80% 95% 95%

11. **Net Retained Nutrients in Manure (lbs./ton)**

(Step 9 x Step 10) Enter zero with lab analysis.

8.92 6.54 7.79

12. **Percent of available nutrients (Table 3)**

60% 80% 100%

13. **Net available nutrients (lbs./ton)**

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

5.35 5.23 7.79

14. **APPLICATION RATE (tons/ac)**

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

10 10 10

15. **Net Application Amount for All Nutrients (lbs/ac)**

[Step 13 x Step 14]

53.5 52.3 77.9

16. **Nutrient Needs or Surpluses (lbs/ac)**

(Step 15 minus Step 8) "-" sign indicates need

-58.5 10.3 -107.1

Tons Available 1,056.66
Solids

-Tons Applied in Field
(Step 14 x Field Acres)

588 =Balance 468.66

WORKSHEET 2 - NUTRIENT BALANCE

| | | |
|--------------|------------------|--------------|
| Tract | Field No. | Acres |
| 924 | 4 (Fall) | 26.9 |

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation

Orchardgrass/Clover Pasture

2. Realistic Yield Goal

3.5 tons/acre

3. Plant Nutrients Needed or Allowed (lbs/ac)

(based on soil tests (ST) or crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| | | |
|-----|-------------------------------|------------------|
| N | P ₂ O ₅ | K ₂ O |
| 122 | 42 | 185 |
| CR | CR | CR |

4. If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.

Step 3 P₂O₅ x 0

0

5. Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)

5

6. Fertilizer Credits (Starter or Other) (lbs/ac)

0 0 0

7. Nitrogen credits for previous manure applications (lbs/ac) Table 5 value x net application of manure nutrients "N" in previous year(s)

5

8. Plant Nutrients Needed minus Credits (lbs/ac)

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

112 42 185

9. Nutrients in Manure (lbs/ton) Circle: solids or Liquids
(Use lab test or weighted value as determined in Worksheet 1)

11.15 6.89 8.20

10. Percent Nutrients Retained in System (Table 2)

Enter Table value as a decimal. (Enter zero with lab analysis)

80% 95% 95%

11. Net Retained Nutrients in Manure (lbs./ton)

(Step 9 x Step 10) Enter zero with lab analysis.

8.92 6.54 7.79

12. Percent of available nutrients (Table 3)

60% 80% 100%

13. Net available nutrients (lbs./ton)

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

5.35 5.23 7.79

14. APPLICATION RATE (tons/ac)

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

10 10 10

15. Net Application Amount for All Nutrients (lbs/ac)

[Step 13 x Step 14]

53.5 52.3 77.9

16. Nutrient Needs or Surpluses (lbs/ac)

(Step 15 minus Step 8) "-" sign indicates need

-58.5 10.3 -107.1

Tons Available 468.66
Solids

-Tons Applied in Field 269
(Step 14 x Field Acres)

=Balance 199.66

WORKSHEET 2 - NUTRIENT BALANCE

| | | |
|-------|-----------|-------|
| Tract | Field No. | Acres |
| 924 | 5 (Fall) | 69.4 |

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation

Orchardgrass/Clover Pasture

2. Realistic Yield Goal

3.5 tons/acre

3. Plant Nutrients Needed or Allowed (lbs/ac)

(based on soil tests (ST) or crop removal (CR) rates in Table 6)

NOTE: Plant Nutrient Needs for "N" cannot exceed a one year crop sequence (e.g., corn/wheat in a corn/wheat/soybean sequence)

When based on crop removal, nutrients needed are based on yield level.

| | | |
|-----|-------------------------------|------------------|
| N | P ₂ O ₅ | K ₂ O |
| 122 | 42 | 185 |
| CR | CR | CR |

4. If applicable, adjusted P₂O₅ Application Rate according to Threshold or P Index.

Step 3 P₂O₅ x 0

0

5. Nitrogen Credits from previous legume crop (lbs/ac. from Table 4)

5

6. Fertilizer Credits (Starter or Other) (lbs/ac)

0 0 0

7. Nitrogen credits for previous manure applications (lbs/ac) Table 5 value x net application of manure nutrients "N" in previous year(s)

5

8. Plant Nutrients Needed minus Credits (lbs/ac)

(Step 3 for N minus Steps 5, 6, & 7 or Step 4 for P₂O₅ minus Step 6)

112 42 185

9. Nutrients in Manure (lbs/ton) Circle: Solids or Liquids (Use lab test or weighted value as determined in Worksheet 1)

11.15 6.89 8.20

10. Percent Nutrients Retained in System (Table 2)

Enter Table value as a decimal. (Enter zero with lab analysis)

80% 95% 95%

11. Net Retained Nutrients in Manure (lbs./ton)

(Step 9 x Step 10) Enter zero with lab analysis.

8.92 6.54 7.79

12. Percent of available nutrients (Table 3)

60% 80% 100%

13. Net available nutrients (lbs./ton)

(Step 11 x Step 12 without lab analysis. Step 9 x Step 12 with lab analysis)

5.35 5.23 7.79

14. APPLICATION RATE (tons/ac)

(Step 8 / Step 13)

Note: Application limitations may apply. See 590 Standard

10 10 10

15. Net Application Amount for All Nutrients (lbs/ac)

[Step 13 x Step 14]

53.5 52.3 77.9

16. Nutrient Needs or Surpluses (lbs/ac)

(Step 15 minus Step 8) "-" sign indicates need

-58.5 10.3 -107.1

Tons Available 199.66
Solids

-Tons Applied in Field
(Step 14 x Field Acres)

694 =Balance -494.34

WORKSHEET 3 - APPLICATION RATES AND LAND REQUIREMENTS ^{1/}

Tract No.
924

This section to be filled out with assistance from NRCS field office

| Field No. | Acres | Crop Rotation / Sequence & Realistic Yield | Application Date or Timing | Allplication Rate ^{2/} (tons/ac or lbs/ac) | Form ^{6/} (S, L, C,) | Total per Field (tons or lbs) | Soil Test Phosphorus ^{3/} | P Index Rating ^{4/} (low, medium, high, very high) | Planned BMPs ^{5/} | |
|-----------|-------|--|----------------------------|---|-------------------------------|-------------------------------|------------------------------------|---|----------------------------|------|
| | | | | | | | | | BMP | Date |
| 1 | 29.4 | Pasture 3.5 T/A | Spring | 10 T/A | S | 294 T/A | | Medium | | |
| 2 | 46.4 | Pasture 3.5 T/A | Spring | 10 T/A | S | 464 T/A | | Medium | | |
| 3 | 58.8 | Pasture 3.5 T/A | Spring | 10 T/A | S | 588 T/A | | Medium | | |
| 4 | 26.9 | Pasture 3.5 T/A | Spring | 10 T/A | S | 269 T/A | | Medium | | |
| 5 | 69.4 | Pasture 3.5 T/A | Spring | 10 T/A | S | 694 T/A | | Medium | | |
| 1 | 29.4 | Pasture 3.5 T/A | Fall | 10 T/A | S | 294 T/A | | Medium | | |
| 2 | 46.4 | Pasture 3.5 T/A | Fall | 10 T/A | S | 464 T/A | | Medium | | |
| 3 | 58.8 | Pasture 3.5 T/A | Fall | 10 T/A | S | 588 T/A | | Medium | | |
| 4 | 26.9 | Pasture 3.5 T/A | Fall | 10 T/A | S | 269 T/A | | Medium | | |
| 5 | 69.4 | Pasture 3.5 T/A | Fall | 10 T/A | S | 694 T/A | | Medium | | |

1/ Where land application is occurring under long term lease or agreement with adjacent landowner, fields must be included in the above table.
 2/ Reference maximum rate per application in 590 Standard. For phosphorus based applications, a one time application can occur for crops grown in multiple years (e.g., corn following by winter wheat followed by soybeans).
 3/ When soil test P exceeds 400, use Phosphorous Threshold or Phosphorous Index
 4/ P Index Rating is used to indicate the potential movement for phosphorus. A "High" or "Very High" rating value indicates the need for BMPs to reduce P movement.
 5/ Fields that have a "High" or "Very High" rating according to the current P Index will implement Best Management Practices to reduce the risk of nutrient movement to sensitive waterbodies. BMPs may include, but not be limited to: installing vegetative buffers, reducing P2O5 application rate, incorporating manure, adding chemical treatments to litter that tie up soluble P and keep it from moving over the landscape, and/or adjusting application timing.
 6/ Nutrient Form: Enter S for solid, L for liquid, or C for commercial fertilizer.

APPENDIX B

MANURE SAMPLING PROCEDURES

For laboratory testing, manure can be handled as a solid, semi-solid, or liquid. Semi-solid manure usually requires thorough agitation before pumping and sampling.

When to Sample

Sample manure as close to the time of land application as possible. Sampling at the time of application will not provide manure recommendations that can be used to adjust the amount of manure applied. However, the results can be used to adjust the amount of inorganic fertilizer applied and can also be used at the next application event. If you apply manure several times a year, sample when you apply the bulk of the manure. Ideally, manure sampling should be done in the field as manure is applied. This ensures that losses that occur during handling, storage, and application are taken into account.

Manure Sampling in the Field

Dry or Solid Field Sampling. To sample manure from barns, holding areas, dry stacks, or feed lots, collect a sample as follows:

Use the "hand and bag" method to collect all solid manure samples. Place a one-gallon re-sealable freezer bag turned inside out over one hand. Grab a handful of manure with covered hand and turn the freezer bag right side out over the sample with the free hand. Seal the bag and place it in another freezer bag to prevent leaks. Label the bag and send to the lab or freeze it immediately to prevent nutrient losses. Take three samples for dry or solid manure. Combine the samples and mix. Place in zip-lock bag.

Liquid Manure Sampling

When sampling liquid manure agitate the manure in the storage facility to obtain a representative sample for laboratory analysis.

Liquid Manure Applied with Spreaders

1. Immediately after filling the tank spreader, use a clean plastic bucket to collect manure from the unloading port or the opening near the bottom of the tank. Be sure the opening does not have solids accumulated that can contaminate the samples.
2. Stir the manure in the pail and immediately fill a one-quart flexible plastic bottle about 25 percent full. Do not use a glass bottle as it might explode from pressure build-up. Squeeze as much air out of the bottle as possible before capping.
3. Put your name, date and sample number on the bottle and the information sheet.
4. If the sample cannot be sent to the laboratory within a few hours, it should be refrigerated. Place the sample in a plastic bag, seal the bag, and keep cool until it is sent to the laboratory. Ship so that the sample arrives promptly at the laboratory.

Liquid Manure Applied by Irrigation Systems

1. Place catch pans or buckets randomly in the field to collect the liquid manure that is applied by an irrigation system.

2. Immediately after the manure has been applied, collect the manure from each pan or bucket and combine in one bucket to make a composite sample.
3. Mix the manure and fill a one-quart flexible plastic bottle about 25 percent full. Seal and label the bottle and seal in a plastic bag. If the sample cannot be shipped to the laboratory right away, keep refrigerated. Ship to arrive promptly in the laboratory.

Dry or Solid Manure Sampling

Paved Lots

1. Collect manure by scraping a shovel across 25 feet of paved feedlot. Repeat this process six to eight times. Avoid samples from areas that are very wet or contain large amounts of feed or hay.
2. Use the shovel to thoroughly mix manure by scooping the outside of the pile to the center of the pile.
3. Collect a sample using the "hand and bag" method described in the section on dry or solid field sampling.

Barn Gutter

1. Shovel a manure sample to the depth of the gutter from the gutter.
2. Remove the manure from the gutter and place it on the barn floor. Mix the sample by hand (wearing freezer bags) with a kneading motion. When collecting samples from a gutter, be sure to include the liquid that is in the bottom of the gutter.
3. Collect a sample using the "hand and bag" method.
4. Repeat steps one through three from other locations in the gutter to collect three sub samples. Combine the sub samples and mix. Place in zip-lock bag and squeeze out all of the air before closing.

Dry Stack

This is manure stored outside in a stacking shed or above ground solid waste storage facility.

1. Using a pitchfork or shovel, take manure from several locations throughout the dry stack and place it in a pile. Collect samples from the outside/center of stack.
2. Mix the manure with a shovel by scooping the outside of the pile to the center of the pile.
3. Collect a sample by the "hand and bag" method.

Repeat steps one through three to collect the three sub samples. Combine the sub samples and mix. Place in a zip-lock bag and squeeze out all of the air before closing.

Shipping

Samples should be shipped express mail to the lab the same day they are collected. If not, they should be refrigerated immediately. It is advisable to keep samples on ice even during shipment to the laboratory.

LITTER SAMPLING PROCEDURES

All litter is not managed the same way.

Nutrient content can vary considerably.

Every poultry producer should have his or her litter analyzed for nutrient content. If the litter is fed to cattle, an analysis is critical. Litter is fed to cattle for crude protein and ash content. Litter with a crude protein content of 28 percent and an ash content less than 15 percent is ideal for feeding. Since calcium, phosphorus, potassium and trace minerals make up about 12 percent of the ash content, anything above that amount is probably soil. Since soil is worthless for feed, care must be taken when removing litter from the houses.

Sample Collection

General Sampling. Several small samples should be collected in clean 5 gallon buckets. Mix the contents of the 5 gallon buckets for a composite sample. Place a one-gallon resealable freezer bag turned inside out over one hand. Grab a handful of manure with covered hand and turn the freezer bag right side out over the sample with the free hand. Seal the bag and place it in another freezer bag to prevent leaks. Label the bag and send to the lab or freeze it immediately to prevent nutrient losses. Label the bags with permanent marker as follows:

1. Name
2. Address
3. Type of chicken
4. Number of flocks representing the sample
5. House number
6. Method of sampling (in-house, from stack, during loading, in-field)

As a precautionary measure include the same information on a 3 by 5 card and place inside the outside freezer bag.

Other Methods of Sampling

In-House: Ten to 15 samples are collected throughout the house before cleanout. Three to four samples should be collected under or near the waterers and the rest collected throughout the remainder of the house. Dig only as deeply as you plan to scrape. Be careful not to include any soil in the sample. This method of sampling will allow reports back before land application so that an appropriate land application amount can be determined. This method is labor intensive.

During cleanout. Samples are collected as litter is loaded onto the spreader or as it is temporarily stockpiled prior to spreading. Individual samples should be collected throughout the cleanout. This method of sampling will not allow time for lab results return before land application occurs. This method will reflect an analysis of what is actually scraped out of the houses.

During spreading. A plastic sheet or gallon plastic jugs cut in half are placed in the field to collect litter as it is spread. This method is most accurate. This method will not allow time for lab results to be returned in time. However, results can be used the following application event.

Stockpile. Litter stored for a period of time is subject to heat and this can change its chemical characteristics. Since temperatures will peak in 10 to 20 days after initial stacking, samples should be collected after the temperature drops and as close to spreading or feedings time as possible. Individual samples should be collected at several points as with the general sampling procedures. Make sure to dig into the stack 2 to 3 feet for representative sample.

Shipping

Samples should be shipped express mail to the lab the same day they are collected. If not, they should be refrigerated immediately. It is advisable to keep samples on ice even during shipment to the lab.

APPENDIX C

Soils Map

Date: 6/19/2008

Customer(s): BOGIE FARMS LLC

District:

Approximate Acres: 59.9

Field Office: RICHMOND SERVICE CENTER

Agency: USDA-NRCS

Assisted By: Samuel K Miller

State and County: KY, MADISON



Scale 1:3,960
1" = 330'



Topographic Map

Date: 6/19/2008

Customer(s): BOGIE FARMS LLC

District:

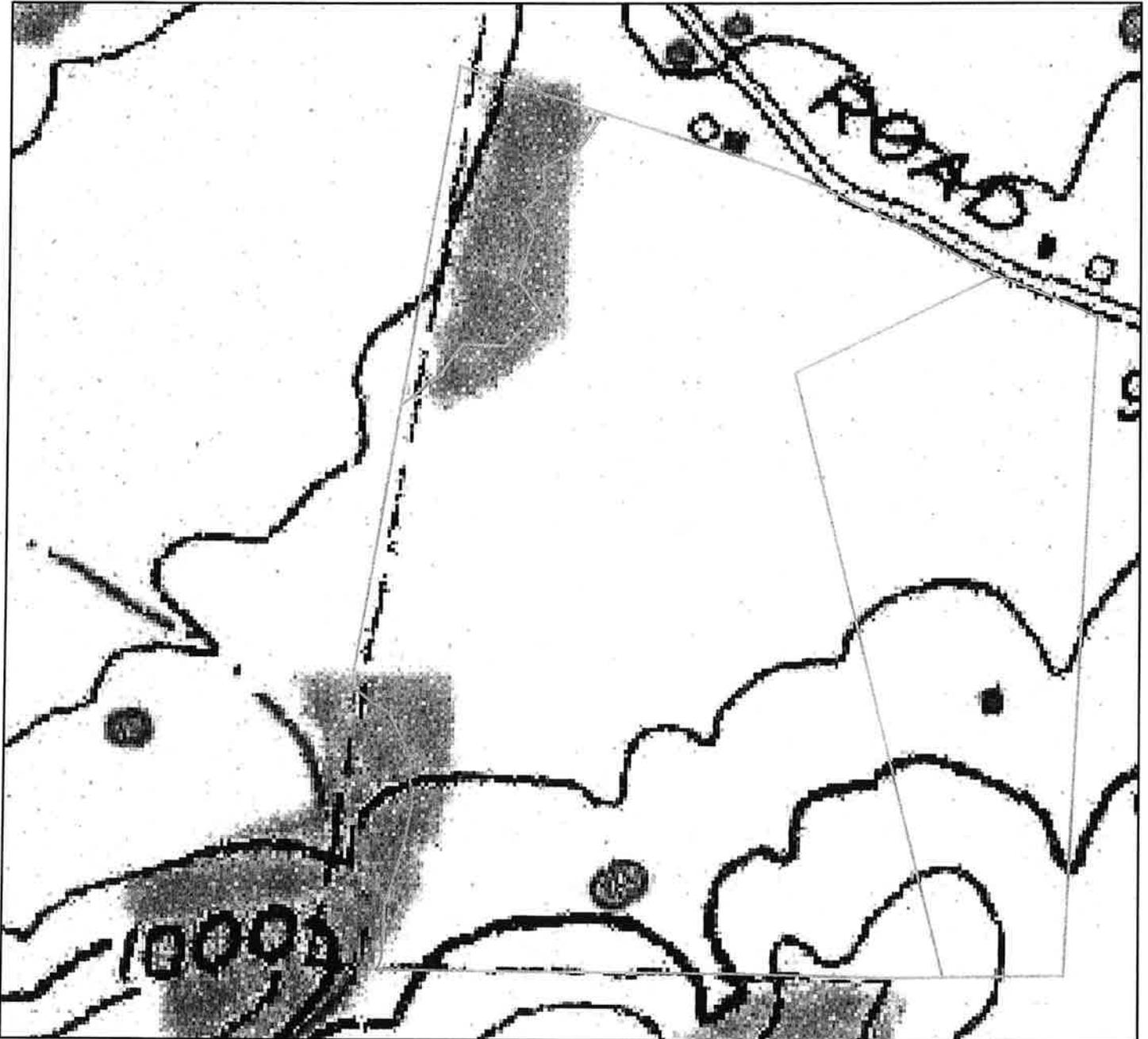
Approximate Acres: 59.9

Field Office: RICHMOND SERVICE CENTER

Agency: USDA-NRCS

Assisted By: Samuel K Miller

State and County: KY, MADISON



Scale 1:3,960
1" = 330'



Legend

 Consplan



Soils Inventory Report

BOGIE FARMS LLC

| Tract | Land Unit | Map Unit Symbol | Map Unit Name | Acres | Percent |
|-------|-----------|-----------------|-------------------------|-------|---------|
| 6133 | 1 | Du | DUNNING SILTY CLAY LOAM | 0.7 | 21% |
| 6133 | 1 | Mt | MELVIN SILT LOAM | 2.7 | 79% |

Total: 3.4

| | | | | | |
|------|---|-----|---|------|-----|
| 6133 | 2 | MuA | MERCER SILT LOAM, 0 TO 2 PERCENT SLOPES | 0.2 | 0% |
| 6133 | 2 | Ne | NEWARK SILT LOAM | 2 | 5% |
| 6133 | 2 | LwC | LOWELL SILT LOAM, 6 TO 12 PERCENT SLOPES | 2 | 5% |
| 6133 | 2 | Mt | MELVIN SILT LOAM | 2.8 | 7% |
| 6133 | 2 | BaC | BEASLEY SILT LOAM, 6 TO 12 PERCENT SLOPES | 6 | 15% |
| 6133 | 2 | BrE | BRASSFIELD SILT LOAM, 12 TO 30 PERCENT SLOPES | 6.6 | 16% |
| 6133 | 2 | Lc | LAWRENCE SILT LOAM | 6.9 | 17% |
| 6133 | 2 | Du | DUNNING SILTY CLAY LOAM | 14.2 | 35% |

Total: 40.7

| | | | | | |
|------|---|-----|---|-----|-----|
| 6133 | 3 | BaD | BEASLEY SILT LOAM, 12 TO 20 PERCENT SLOPES | 0.3 | 2% |
| 6133 | 3 | BaC | BEASLEY SILT LOAM, 6 TO 12 PERCENT SLOPES | 0.7 | 4% |
| 6133 | 3 | Lc | LAWRENCE SILT LOAM | 1.3 | 8% |
| 6133 | 3 | LwC | LOWELL SILT LOAM, 6 TO 12 PERCENT SLOPES | 2 | 13% |
| 6133 | 3 | BrE | BRASSFIELD SILT LOAM, 12 TO 30 PERCENT SLOPES | 2.2 | 14% |
| 6133 | 3 | Rb | ROBERTSVILLE SILT LOAM | 2.4 | 15% |
| 6133 | 3 | Ne | NEWARK SILT LOAM | 2.7 | 17% |
| 6133 | 3 | Du | DUNNING SILTY CLAY LOAM | 4.2 | 27% |

Total: 15.8

Map Unit Description (Brief, Generated)

Madison County, Kentucky

[Minor map unit components are excluded from this report]

Map unit: BaC - Beasley silt loam, 6 to 12 percent slopes

Component: Beasley (80%)

The Beasley component makes up 80 percent of the map unit. Slopes are 6 to 12 percent. This component is on ridges on uplands. The parent material consists of clayey residuum weathered from limestone and siltstone and/or shale. Depth to a root restrictive layer, bedrock (paralithic), is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 12 percent.

Map unit: BaD - Beasley silt loam, 12 to 20 percent slopes

Component: Beasley (80%)

The Beasley component makes up 80 percent of the map unit. Slopes are 12 to 20 percent. This component is on hills on uplands. The parent material consists of clayey residuum weathered from limestone and siltstone and/or shale. Depth to a root restrictive layer, bedrock (paralithic), is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 12 percent.

Map unit: BrE - Brassfield silt loam, 12 to 30 percent slopes

Component: Brassfield (80%)

The Brassfield component makes up 80 percent of the map unit. Slopes are 12 to 30 percent. This component is on hills on uplands. The parent material consists of fine-loamy residuum weathered from limestone, sandstone, and shale and/or siltstone. Depth to a root restrictive layer, bedrock (paralithic), is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 40 percent.

Map unit: Du - Dunning silty clay loam

Component: Dunning (75%)

The Dunning component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on valleys. The parent material consists of clayey alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria.

Map unit: Lc - Lawrence silt loam

Component: Lawrence (90%)

The Lawrence component makes up 90 percent of the map unit. Slopes are 0 to 4 percent. This component is on flats on uplands. The parent material consists of old fine-silty alluvium derived from limestone. Depth to a root restrictive layer, fragipan, is 18 to 32 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Map Unit Description (Brief, Generated)

Madison County, Kentucky

Map unit: LwC - Lowell silt loam, 6 to 12 percent slopes

Component: Lowell (90%)

The Lowell component makes up 90 percent of the map unit. Slopes are 6 to 12 percent. This component is on ridges on uplands. The parent material consists of clayey residuum weathered from limestone. Depth to a root restrictive layer, bedrock (lithic), is 40 to 80 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 2 percent.

Map unit: Mt - Melvin silt loam

Component: Melvin (90%)

The Melvin component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on valleys. The parent material consists of mixed fine-silty alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria.

Map unit: MuA - Mercer silt loam, 0 to 2 percent slopes

Component: Mercer (90%)

The Mercer component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on uplands. The parent material consists of fine-silty residuum weathered from phosphatic limestone. Depth to a root restrictive layer, fragipan, is 17 to 28 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during January, February, March, April. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Map unit: Ne - Newark silt loam

Component: Newark (90%)

The Newark component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on valleys. The parent material consists of mixed fine-silty alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Map unit: Rb - Robertsville silt loam

Component: Robertsville (90%)

The Robertsville component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on uplands. The parent material consists of old fine-silty alluvium derived from limestone and siltstone and/or shale. Depth to a root restrictive layer, fragipan, is 15 to 32 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria.



5079V
7924

2
14.8

HEL
1
29.4

AIRPORT

2
46.4

3
58.8

4
26.9

DNEL

1
12.4

5
69.4

395
7928